

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:

Brenda F. Baker, et al.

Confirmation No.: 7522

Application No.: 10/700,920

Group Art Unit: 1635

Filing Date: November 4, 2003

Examiner: Not Yet Assigned

For: OLIGOMERIC COMPOUNDS HAVING MODIFIED BASES FOR BINDING

TO CYTOSINE AND URACIL OR THYMINE AND THEIR USE IN GENE

MODULATION

DATE OF DEPOSIT

I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL, POSTAGE PREPAID, ON THE DATE INDICATED ABOVE AND IS ADDRESSED TO THE UNITED STATES PATENT AND TRADEMARK OFFICE, P.O. BOX 1450, ALEXANDRIA,

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Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 CFR § 1.56 and in accordance with 37 CFR §§ 1.97-1.98, information relating to the above-identified application is hereby disclosed. Inclusion of information in this statement is not to be construed as an admission that this information is material as that term is defined in 37 CFR § 1.56(b).

In accordance with § 1.97(b), since this Information Disclosure Statement is being filed either within three months of the filing date of the above-identified application, within three months of the date of entry into the national stage of

the above identified application as set forth in § 1.491, before the mailing date

of a first Office Action	on on the merits of the above-identified application, or
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continued examination	under § 1.114, no additional fee is required.
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Copies of each of the	references listed on the attached Form PTO-1449 are
enclosed herewith.	

- Copies of references listed on the attached Form PTO-1449 are enclosed herewith
- Copies of references listed on the attached Form PTO 1449 are not required to be submitted pursuant to the June 30, 2003 recent revisions to 37 CFR § 1.98(a)(2)(i).

EXCEPT THAT:

- In view of the voluminous nature of references 3, 16 and 23-25, and the likelihood that these references are available to the Examiner, copies are not enclosed herewith.
- In accordance with § 1.98(d), copies of the following references listed on the attached Form PTO-1449 are not enclosed herewith because they were previously cited by or submitted to the U.S. Patent and Trademark Office in patent application(s) for which a claim for priority under 35 U.S.C.§ 120 have been made in the instant application:
 - Copies of references 3-28, 156-183 and 222-228 listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior Application No. 08/659,440, filed June 6, 1996 now U.S. Patent No. 5,898,031; copies of references 29-112, 184-192 and 229-230 listed on the attached Form PTO-1449 were previously cited by or submitted to the Patent and Trademark Office in prior Application No. 08/870,608, filed June 6, 1997 now U.S. Patent 6,107,094; copies of references 113-129, 193-195 and 231 listed on the attached Form PTO-1449 were previously

cited by or submitted to the Patent and Trademark Office in prior Application No. 09/479,783, filed July 7, 2000.

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3050. This form is submitted in duplicate.

The relevance of those listed references which are not in the English language is as follows:

There are no listed references which are not in the English language.

Date: Azul 12, 2004

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ADEMIN .				
Form 1	PTO	-1449 Modified	Docket No. ISIS-5203	Application No. 10/700,920
List of Patent and Publications Cited by Applicant (Use several sheets if necessary)			Applicant Brenda F. Baker, et al.	
U.S. Department of Commerce Patent and Trademark Office			Filing Date November 4, 2003	Group Not Yet Assigned
			Confirmation No. Not Yet Assigned	
O'	ГНЕІ	R DOCUMENTS (Includ	ing Author, Title, Date,	Pertinent Pages, Etc.)
*	3	Ausubel, et al., Eds., Current Protocols in Molecular Biology, 1988, Wiley & Sons, New York		
	4	Beaucage S. and Iyer, R., "Advances in the synthesis of oligonucleotides by the phosphoramidite approach", <i>Tetrahedron Letters</i> , 1992 , 48, 2223-2311		
	5	Beaucage S. and Iyer, R., "The synthesis of modified oligonucleotides by the phosphoramidite approach and their applications", <i>Tetrahedron</i> , 1993 , <i>49</i> , 6123-6194		
	6	Bhat, et al., "A Simple and Convenient Method for the Selective N-Acylations of Cytosine Nucleosides", <i>Nucleosides and Nucleotides</i> , 1989 , 8, 179-183		
	7	T	t, C.F., "Progress in Antiso." Pharmacol. Toxicol., 19	
	8			hia coli Rnase H1: cleavage of , Biochem. J., 1995, 312, 599-608
	Dagle, et al., "Targeted degradation of mRNA in Xenopus oocytes and embryos directed by modified oligonucleotides: studies of An2 and cyclin in embryogenesis Nucleic Acids Research, 1990, 18, 4751-4757			<u> </u>
	10	Dagle, et al., "Pathways of Degradation and Mechanism of Action of Antisense Oligonucleotides in Xenopus laevis Embryos", Antisense Res. And Dev., 1991, I, 11-20		
	11	Dagle, et al., "Physical properties of oligonucleotides containing phosphoramidate-modified internucleoside linkages", <i>Nucleic Acids Research</i> , 1991 , <i>19</i> , 1805-1810		
	Englisch, U. And Gauss, D.H., "Chemically Modified Oligonucleotides as Probes and Inhibitors", Angewandt Chemie, International Edition Engl., 1991, 30, 613-629			
EXAMINER			DATE CON	ISIDERED

^{*} A copy of this reference will not be forwarded to the U.S. Patent and Trademark Office since it is believed to be too voluminous and easily obtainable by the Examiner.



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1	U.S. Department of Commerce Patent and Trademark Office			e · 4, 2003	Group Not Yet Assigned	
			Confirmat Not Yet A			
0	THEI	R DOCUMENTS (Includ	ing Author	, Title, Date, l	Pertinent Pages, Etc.)	
	Haeuptle and Dobberstein, "Translation arrest by oligonucleotides complementar mRNA coding sequences yields polypeptides of predetermined length", <i>Nucleic Acids Res.</i> , 1986 , <i>14</i> , 1427-1448			• •		
	14	Eder, P.S. and Walder, J.A., "Ribonuclease H from K562 Human Erythroleukemia Cells", J. Biol. Chem., 1991, 266, 6472-6479				
	15	Kawasaki, et al., "Uniformly Modified 2'-Deoxy-2'-fluoro Phosphorothioate Oligonucleotides as Nuclease-Resistant Antisense Compounds with High Affinity and Specificity for RNA Targets", J. Med. Chem., 1993, 36, 831-841				
*	16	Kawasaki, et al., "Synthesis and Biophysical Studies of 2'-dRIBO-2'-F Modified Oligonucleotides", ISIS Pharmaceuticals, Inc., 2280 Faraday Avenue, Carlsbad, CA 92008, USA				
	17	Martin, "Ein neuer Zugar Oligonucleotide", Helv. (osiden und Eigenschaften deren -504	
	18	Monia, et al., "Selective l' Oligonucleotides", J. Bio			s mRNA Expression by Antisense 4-19962	
	Monia, et al., "Evaluation of 2'-Modified Oligonucleotides Containing 2'-Deoxy Gaps as Antisense Inhibitors of Gene Expression", J. Biol. Chem., 1993, 268, 14514-14522					
	20	20 Reese, C.B., et al., "4-(1,2,4-Triazol-1-yl)-and 4-(3-Nitro-1,2,4-triazol-1-yl)-1-(β-D-Arabinofuranosyl)cytosine(Ara-C)", J. Chem. Soc. Perkin Trans. I, 1982, pgs. 1171-1176				
	21	Robins, et al., "Nucleic acid related compounds. 41. Restricted furanose conformations of 3',5'-O(1,1,3,3-tetraisoprpyldisilox-1,3-diyl)nucleosides provide a convenient evaluation of anomeric configuration ^{1,2} ", Can. J. Chem., 1983, 61, 1911-1920				
	22	Saison-Behmoaras, T., et al., "Short modified antisense oligonucleotides directed against Haras point mutation induce selective cleavage of the mRNA and inhibit T24 cells proliferation", <i>EMBO</i> , 1991 , <i>10</i> , 1111-1118				
EXAMINER				DATE CONS	SIDERED	

^{*} A copy of this reference will not be forwarded to the U.S. Patent and Trademark Office since it is believed to be too voluminous and easily obtainable by the Examiner.

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		ent of Commerce rademark Office	Filing Dat November		Group Not Yet Assigned	
			Confirmat Not Yet A			
ОТІ	HER	R DOCUMENTS (Includ	ding Author	r, Title, Date,	Pertinent Pages, Etc.)	
*	23	Concise Encyclopedia of Polymer Science and Engineering, pgs. 858-859, Kroschwitz, J.I., Ed., John Wiley & Sons, 1990				
*	24	Oligonucleotide Synthesis, A Practical Approach, M.J. Gait, Ed., IRL Press, 1984				
*	25	Oligonucleotide and Analogs, A Practical Approach, F. Eckstein, Ed., IRL Press, 1991, Chapters 1-7				
	26	De Mesmeker, et al., "Antisense Oligonucleotides", Acc. Chem. Res., 1995, 28, 366-374				
	27	Sands, et al., "Biodistribution and Metabolism of Internally ³ H-Labeled Olionucleotides. II. 3',5'-Blocked Oligonucleotides", <i>Am. Soc. Pharmacol. Exp. Ther.</i> , 1995 , <i>47</i> , 636-646				
	Strickland, et al., "Antisense RNA Directed Against the 3' Noncoding Region Prevents Dormant mRNA Activation in Mouse Oocytes", Science, 1988, 241, 680-684					
	29 Goodchild, et al., "Conjugates of Oligonucleotides and Modified Oligonucleotides: A Review of their Synthesis and Properties", <i>Bioconjugate Chem.</i> , 1990, 1(3), 165-187					
	30 Menelev, et al., Bioorg. & Med. Chem. Lett., 1994, 4(24), 2929-2934					
	31 Lengyel, J. Enzym. Res., 1987, 7, 511-519					
	32	Milligan, J. Med. Chem.	, 1993, <i>36</i> , 1	1923		
EXAMINER	1			DATE CON	SIDERED	

^{*} A copy of these references will not be forwarded to the U.S. Patent and Trademark Office since they are believed to be too voluminous and easily obtainable by the Examiner.

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		nent of Commerce Trademark Office	Filing Date November 4, 2003	Group Not Yet Assigned	
			Confirmation No. Not Yet Assigned		
O	ГНЕІ	R DOCUMENTS (Includ	ing Author, Title, Date	, Pertinent Pages, Etc.)	
	33	Tseng, et al., "Antisense Therapeutics", Cancer G		logy in the Development of Cancer 1, 65-71	
	34				
	35	Stein, C.A. et al., "Antisense Oligonucleotides as Therapeutic Agents - Is the Bullet Really Magical?", Science, 1993, 261, 1004-1012			
	36	Stull, et al., "Antigene, Ribozyme and Aptamer Nucleic Acid Drugs: Progress and Prospects", <i>Pharm. Res.</i> , 1995 , <i>Pharm. Rev.</i> , <i>12</i> , 465-482			
	37	Uhlmann, et al., "Antiser Rev., 1990, 90, 543	se Oligonucleotides: A	New Therapeutic Principle", Chem.	
	Akashi, et al., "Novel Stationary Phases for Affinity Chromatography. Nucleoba Selective Recognition of Nucleosides and Nucleotides on Poly(9-vinyladenine)-Supported Silica Gel ¹⁾ ", Chem. Letters, 1988, 1093-1096			otides on Poly(9-vinyladenine)-	
	Alberts, et al., "DNA-Cellulose Chromatography", Meth. Enzymol., 1971, 21, 19			', Meth. Enzymol., 1971, 21, 198-	
	Arndt-Jovin, et al., "Covalent Attachment of DNA to Agarose", Eur. J. Biochem., 1975, 54, 411-418			A to Agarose", Eur. J. Biochem.,	
	Blanks, et al., "An oligodeoxynucleotide affinity column for the isolation of seque specific DNA binding proteins", <i>Nucleic Acids Res.</i> , 1988 , <i>16</i> , 10283-10299				
	Blomberg, P., "Control of replication of plasmid R1: the duplex between the antisense RNA, CopA, and its target, CopT, is processed specifically <i>in vivo</i> and <i>in vitro</i> by Rnase III", <i>EMBO J.</i> , 1990 , <i>9</i> , 2331-2340				
EXAMINER			DATE CO	NSIDERED	
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Form PTO-1449 Modified	Docket No. ISIS-5203	Application No. 10/700,920		
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U.S. Department of Commerce Patent and Trademark Office	Filing Date November 4, 2003	Group Not Yet Assigned		
	Confirmation No. Not Yet Assigned			
OTHER DOCUMENTS (Include	ding Author, Title, D	ate, Pertinent Pages, Etc.)		
Bunemann, et al., Immobilization of denatured DNA to macroporous supports: Efficiency of different coupling procedures", <i>Nucleic Acids Res.</i> , 1982 , <i>10</i> , 716 7180				
Steric and kinetic param	Bunemann, H., "Immobilization of denatured DNA to macroporous supports: II. Steric and kinetic parameters of heterogeneous hybridization reactions", <i>Nucleic Acids Res.</i> , 1982 , <i>10</i> , 7181-7196			
	e Polypeptide Possesses the Binding and Transcription rus Major Late Transcription Factor", Mol. Cell. Biol.,			
1 1	Crooke, et al., "Phmarmacokinetic Properties of Several Novel Oligonucleotic Analogs in mice", J. Pharmacol. Exp. Therm., 1996, 277, 923-927			
47 Dake, et al., "Purificatio Saccharomyces cerevision		e Major Nuclease from Mitochondria of 988, 263, 7691-7702		
Day, et al., "Immobiliza 1991, 278, 735-740	tion of polynucleotide	es on magnetic particles", Biochem. J.,		
Drmanac, et al., "DNA S Efficient Large-Scale Se		on by Hybridization: A Strategy for 993 , <i>260</i> , 1649-1652		
Protein Using Teflon-Li	Duncan, et al., "Affinity Chromatography of a Sequence-Specific DNA Binding Protein Using Teflon-Linked Oligonucleotides", Anal. Biochem., 1988, 169, 104			
Bacteriophage T7 Messe	Dunn, J.J. and Studier, F.W., "Effect of RNAase III Cleavage on Translation of Bacteriophage T7 Messenger RNAs", J. Mol. Biol., 1975, 99, 487-499			
Elela, et al., "RNase III Cleaves Eukaryotic Preribosomal RNA at a U3 snoRNP-Dependent Site", <i>Cell</i> , 1996 , <i>85</i> , 115-124				
EXAMINER	DATE (CONSIDERED		

			I.		
Form 1	РТО	-1449 Modified	Docket No ISIS-5203		Application No. 10/700,920
C	List of Patent and Publications Cited by Applicant (Use several sheets if necessary)			Baker, et al.	
	U.S. Department of Commerce Patent and Trademark Office			r 4, 2003	Group Not Yet Assigned
				tion No. Assigned	
O	THE	R DOCUMENTS (Includ	ing Author	r, Title, Date, l	Pertinent Pages, Etc.)
	53	Fahy, et al., "Design and synthesis of polyacrylamide-based oligonucleotide support for use in nucleic acid diagnostics", <i>Nucl. Acids Res.</i> , 1993 , <i>21</i> , 1819-1826			
	54	Fishel, et al., "Z-DNA Affinity Chromatography", Methods Enzymol., 1990, 184, 328-342			
	55	Fodor, et al., "Light-Directed, Spatially Addressable Parallel Chemical Synthesis", Science, 1991, 251, 767-773			
	56	Fusi, et al., "Ribonucleases from the extreme thermophilic archaebacterium S. Solfataricus", Eur. J. Biochem., 1993, 16, 305-310			
	57	Gabrielsen, et al., "Magnetic DNA affinity purification of yeast transcription factor τ- a new purification principle for the ultrarapid isolation of near homogeneous factor", Nucleic Acids Research, 1989, 17, 6253-6267			
	58	Gbenle, "Trypanosoma b with Inhibitor Protein",		-	t Endoribonuclease is Associated 432-438
	59	Gbenle, "Simultaneous Is Exoribonucease of Trypa			ndoribonuclease and ochem. Parasitol., 1985, 15, 37-47
	60	Gerdes, K., et al., "Mechanism of Killer Gene Activation. Antisense RNA-dependent Rnase III Cleavage Ensures Rapid Turn-over of the Stable-Hok, SrnB and PndA Effector Messenger RNAs", J. Mol. Biol., 1992, 226, 637-649			
	61	Gingeras, et al., "Hybridization properties of immobilized nucleic acids", <i>Nucl. Acids Res.</i> , 1987 , <i>15</i> , 5373-5391			
	62	Goldkorn, T. And Prockop, D.J., "A simple and efficient enzymatic method for covalent attachment of DNA to cellulose. Application for hybridization-restriction analysis and for <i>in vitro</i> synthesis of DNA probes", <i>Nucleic Acids Res.</i> , 1986 , <i>14</i> , 9171-9191			
EXAMINER				DATE CONS	SIDERED

Form PTO	1440 Madified	Docket No.		Application No.
FORM P1O	-1449 Modified	ISIS-5203		10/700,920
Cited b	List of Patent and Publications Cited by Applicant (Use several sheets if necessary)			
	U.S. Department of Commerce Patent and Trademark Office			Group Not Yet Assigned
		Confirmation Not Yet Ass		
ОТНЕ	R DOCUMENTS (Includ	ing Author,	Title, Date, I	Pertinent Pages, Etc.)
63	Goss, T.A. and Bard, M., "High-performance affinity chromatography of DNA", <i>Chromatogr.</i> , 1990, 508, 279-287			ty chromatography of DNA", J.
64	Guo, et al., "Direct fluorescence analysis of genetic polymorphisms by hybridization with oligonucleotide arrays on glass supports", Nucl. Acids Res., 1994, 22, 5456-5465			
65	Kadonaga, J.T. and Tjian, R., "Affinity purification of sequence-specific DNA binding proteins", <i>Proc. Natl. Acad. Sci. USA</i> , 1986 , <i>83</i> , 5889-5893			
66	Kadonaga, J.T., "Purification of Sequence-Specific Binding Proteins b DNA Affinity Chromatography", <i>Methods in Enzymology</i> , 1991 , 208, 10-23			
67		graphy Base		otion Factors IIIB and IIIC by Biotin Interactions", Mol. And
68	, ,		_	anscription factors by their Nucleic Acids Research, 1989, 17,
69	Kennedy, "Hydrophobic Chromatography", Methods in Enzymology, 1990, 182, 339			ls in Enzymology, 1990, 182, 339-
70	Knecht, D., "Application of Antisense RNA to the Study of the Cytoskeleton: Background, Principles, and a Summary of Results Obtained with Myosin Heavy Chain", Cell Motil. and Cytoskel., 1989, 14, 92-102			
71	Knochbin and Lawrence, "An antisense RNA involved in p53 mRNA maturation in murine erythroleukemia cells induced to differentiate", <i>EMBO J.</i> , 1989 , <i>8</i> , 4107-4114			
72				
EXAMINER			DATE CONS	SIDERED

Form PTO-1449 Modified	Docket No. ISIS-5203	Application No. 10/700,920		
List of Patent and Publications Cited by Applicant (Use several sheets if necessary)	Applicant Brenda F. Baker, et	Applicant Brenda F. Baker, et al.		
U.S. Department of Commerce Patent and Trademark Office	Filing Date November 4, 2003	Group Not Yet Assigned		
	Confirmation No. Not Yet Assigned			
OTHER DOCUMENTS (Including Author, Title, D	ate, Pertinent Pages, Etc.)		
.	myc mRNA Forms an RNA pts", Mol. And Cell. Biol., 1	-RNA Duplex with Endogenous 1990, 10, 4180-4191		
Liao, "A pyrimidir (bullfrog) oocytes'	c ribonuclease from <i>Rana catesbeiana</i> 0, 1371-1377			
75 Lohrmann, et al., "	New Solid Supports for DN	Solid Supports for DNA Synthesis" DNA, 1984, 3, 122		
magnetic beads, D	ynabeads™, and the charact	at of methods for covalent binding of nucleic acids to eads™, and the characteristics of the bound nucleic acids in Nucl. Acids Res., 1988, 16, 10861-10880		
1 1	manent expression of a Dic	W., "Evidence for a feedback regulated back-up promoter at expression of a <i>Dictyostelium</i> gene", <i>Nucl. Acids Res.</i> ,		
78 Matson, et al., "Bio 1994, 217, 306-31		propylene Supports", Anal. Biochem.,		
novel linker for oli	gonucleotide synthesis and	rn, E.M., "Oligonucleotide hybridisations on glass supports: a cleotide synthesis and hybridisation properties of sised <i>in situ</i> ", Nucl. Acids. Res., 1992 , 20, 1679-1684		
Meegan, J.M. and Marcus, P.I., "Double-Stranded Ribonuclease Coinduced with Interferon", <i>Science</i> , 1989 , <i>244</i> , 1089-1091				
81 Narhi, et al., "Hydra Biochem., 1989, 16	-	bic Interaction Chromatography in Alkaline pH", Anal. 6-270		
82 Nellen, W., C., "W 1993, 18, 419-424		ense-itive?", Curr. Opin. Cell. Biol.,		
EXAMINER	DATE C	CONSIDERED		

List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office Filing Date November 4, 2003 Confirmation No. Not Yet Assigned OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) 83 Nellen, W., et al., "Mechanisms of gene regulation by endogenous and artificially introduced antisense RNA", Biochem., Soc. Trans., 1992, 20, 750-754 84 Nitta, et al., "Purification and Some Properties of Ribonuclease from Xenopus laevis Eggs", Biol. Pharm. Bull. (Jpn.), 1993, 16, 353-356 85 Noguchi, et al., "Characterization of an Antisense Inr Element in the eIF-2a Gene", J. Biol. Chem., 1994, 269, 29161-29167 86 Noyes, et al., "Nucleic Acid Hybridization Using DNA Covalently Coupled to Cellulose", Cell., 1975, 5, 301-310 87 Pease, et al., "Light-generated oligonucleotide arrays for rapid DNA sequence analysis", Proc. Natl. Acad. Sci. USA, 1994, 91, 5022-5026 88 Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase Oligonucleotide Synthesis", BioTech., 1988, 6, 768-773 89 Prokipcak, et al., "Purification and Properties of a Protein that Binds to the Cterminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 9261-2969 90 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell, 27, 533-542 91 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627 DATE CONSIDERED	Form 1	РТО	-1449 Modified	Docket No. 1SIS-5203		Application No. 10/700,920
Patent and Trademark Office November 4, 2003 Not Yet Assigned	Cited by Applicant					
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) 83 Nellen, W., et al., "Mechanisms of gene regulation by endogenous and artificially introduced antisense RNA", Biochem., Soc. Trans., 1992, 20, 750-754 84 Nitta, et al., "Purification and Some Properties of Ribonuclease from Xenopus laevis Eggs", Biol. Pharm. Bull. (Jpn.), 1993, 16, 353-356 85 Noguchi, et al., "Characterization of an Antisense Inr Element in the eIF-2α Gene", J. Biol. Chem., 1994, 269, 29161-29167 86 Noyes, et al., "Nucleic Acid Hybridization Using DNA Covalently Coupled to Cellulose", Cell. 1975, 5, 301-310 87 Pease, et al., "Light-generated oligonucleotide arrays for rapid DNA sequence analysis", Proc. Natl. Acad. Sci. USA, 1994, 91, 5022-5026 88 Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase Oligonucleotide Synthesis", BioTech., 1988, 6, 768-773 89 Prokipcak, et al., "Purification and Properties of a Protein that Binds to the Cterminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 9261-2969 90 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell, 27, 533-542 91 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627		Dotant and Trademorts Office				· •
 83 Nellen, W., et al., "Mechanisms of gene regulation by endogenous and artificially introduced antisense RNA", Biochem., Soc. Trans., 1992, 20, 750-754 84 Nitta, et al., "Purification and Some Properties of Ribonuclease from Xenopus laevis Eggs", Biol. Pharm. Bull. (Jpn.), 1993, 16, 353-356 85 Noguchi, et al., "Characterization of an Antisense Inr Element in the eIF-2α Gene", J. Biol. Chem., 1994, 269, 29161-29167 86 Noyes, et al., "Nucleic Acid Hybridization Using DNA Covalently Coupled to Cellulose", Cell, 1975, 5, 301-310 87 Pease, et al., "Light-generated oligonucleotide arrays for rapid DNA sequence analysis", Proc. Natl. Acad. Sci. USA, 1994, 91, 5022-5026 88 Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase Oligonucleotide Synthesis", BioTech., 1988, 6, 768-773 89 Prokipcak, et al., "Purification and Properties of a Protein that Binds to the Cterminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 9261-2969 90 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell, 27, 533-542 91 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627 				1		
 introduced antisense RNA", Biochem., Soc. Trans., 1992, 20, 750-754 84 Nitta, et al., "Purification and Some Properties of Ribonuclease from Xenopus laevis Eggs", Biol. Pharm. Bull. (Jpn.), 1993, 16, 353-356 85 Noguchi, et al., "Characterization of an Antisense Inr Element in the eIF-2α Gene", J. Biol. Chem., 1994, 269, 29161-29167 86 Noyes, et al., "Nucleic Acid Hybridization Using DNA Covalently Coupled to Cellulose", Cell. 1975, 5, 301-310 87 Pease, et al., "Light-generated oligonucleotide arrays for rapid DNA sequence analysis", Proc. Natl. Acad. Sci. USA, 1994, 91, 5022-5026 88 Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase Oligonucleotide Synthesis", BioTech., 1988, 6, 768-773 89 Prokipcak, et al., "Purification and Properties of a Protein that Binds to the Cterminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 9261-2969 90 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell., 27, 533-542 91 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627 	O 7	ГНЕІ	R DOCUMENTS (Inclue	ding Autho	r, Title, Date, 1	Pertinent Pages, Etc.)
 Nitta, et al., "Purification and Some Properties of Ribonuclease from Xenopus laevis Eggs", Biol. Pharm. Bull. (Jpn.), 1993, 16, 353-356 85 Noguchi, et al., "Characterization of an Antisense Inr Element in the eIF-2α Gene", J. Biol. Chem., 1994, 269, 29161-29167 86 Noyes, et al., "Nucleic Acid Hybridization Using DNA Covalently Coupled to Cellulose", Cell. 1975, 5, 301-310 87 Pease, et al., "Light-generated oligonucleotide arrays for rapid DNA sequence analysis", Proc. Natl. Acad. Sci. USA, 1994, 91, 5022-5026 88 Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase Oligonucleotide Synthesis", BioTech., 1988, 6, 768-773 89 Prokipcak, et al., "Purification and Properties of a Protein that Binds to the Cterminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 9261-2969 90 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell., 27, 533-542 91 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627 						
 Noguch, et al., "Characterization of an Antisense Inr Element in the eIF-2α Gene", J. Biol. Chem., 1994, 269, 29161-29167 Noyes, et al., "Nucleic Acid Hybridization Using DNA Covalently Coupled to Cellulose", Cell, 1975, 5, 301-310 Pease, et al., "Light-generated oligonucleotide arrays for rapid DNA sequence analysis", Proc. Natl. Acad. Sci. USA, 1994, 91, 5022-5026 Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase Oligonucleotide Synthesis", BioTech., 1988, 6, 768-773 Prokipcak, et al., "Purification and Properties of a Protein that Binds to the Cterminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 9261-2969 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell., 27, 533-542 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627 		84	Nitta, et al., "Purification and Some Properties of Ribonuclease from Xenopus laevis			
Noyes, et al., "Nucleic Acid Hybridization Using DNA Covalently Coupled to Cellulose", Cell, 1975, 5, 301-310 87 Pease, et al., "Light-generated oligonucleotide arrays for rapid DNA sequence analysis", Proc. Natl. Acad. Sci. USA, 1994, 91, 5022-5026 88 Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase Oligonucleotide Synthesis", BioTech., 1988, 6, 768-773 89 Prokipcak, et al., "Purification and Properties of a Protein that Binds to the C-terminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 9261-2969 90 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell, 27, 533-542 91 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627		85	Noguchi, et al., "Characterization of an Antisense In Element in the eIF-2 α Gene",			
Pease, et al., "Light-generated oligonucleotide arrays for rapid DNA sequence analysis", Proc. Natl. Acad. Sci. USA, 1994, 91, 5022-5026 88 Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase Oligonucleotide Synthesis", BioTech., 1988, 6, 768-773 89 Prokipcak, et al., "Purification and Properties of a Protein that Binds to the Cterminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 9261-2969 90 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell, 27, 533-542 91 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627		86	Noyes, et al., "Nucleic Acid Hybridization Using DNA Covalently Coupled to			NA Covalently Coupled to
Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase Oligonucleotide Synthesis", <i>BioTech.</i> , 1988, 6, 768-773 89 Prokipcak, et al., "Purification and Properties of a Protein that Binds to the Cterminal Coding Region of Human c-myc mRNA", <i>J. Biol. Chem.</i> , 1994, 269, 9261-2969 90 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, <i>Cell</i> , 27, 533-542 91 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", <i>J. Chromatogr.</i> , 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", <i>Die Makromolekulart Chemie</i> , 1975, 176, 1611-1627		87			•	· • • •
Prokipcak, et al., "Purification and Properties of a Protein that Binds to the Cterminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 9261-2969 Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell, 27, 533-542 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627		Pon, et al., "Derivatization of Controlled Pore Glass Beads for Solid Phase				
Salto, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulates Expression of Gene 1.2 of Bacteriophage T7", 1981, Cell, 27, 533-542 91 Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627		terminal Coding Region of Human c-myc mRNA", J. Biol. Chem., 1994, 269, 926				
Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden", J. Chromatogr., 1975, 115, 461-476 92 Seliger, H., "Handelsubliche Polymere als Trager in der Oligonucleotidsynthese, 1", Die Makromolekulart Chemie, 1975, 176, 1611-1627		Saito, H. And Richardson, C., "Processing of mRNA by Ribonuclease III Regulate				J
Die Makromolekulart Chemie, 1975, 176, 1611-1627		Schott, "Template-Chromatographie An Stationar Gebundenen Oligonukleotiden			Gebundenen Oligonukleotiden", J.	
EXAMINER DATE CONSIDERED		92	, ,	•		<u> </u>
	EXAMINER				DATE CONS	SIDERED

Form PTO-1449 Modified	Docket No. ISIS-5203	Application No. 10/700,920		
List of Patent and Publications Cited by Applicant (Use several sheets if necessary)	Applicant Brenda F. Baker, et	al.		
U.S. Department of Commerce Patent and Trademark Office	Filing Date November 4, 2003	Group Not Yet Assigned		
	Confirmation No. Not Yet Assigned			
OTHER DOCUMENTS (Inclu	ding Author, Title, Da	ate, Pertinent Pages, Etc.)		
	alkohol und N-Vinylpy	eleotidsynthese an unvernetzten vrrolidon", <i>Die Makromolekulare</i>		
	Seliger, H. And Aumann, G., "Oligonucleotide Synthesis on a Polymer S Soluble in Water and Pyridine", <i>Tetrahedron Letters</i> , 1973 , No. 31, 291			
	bridization to DNA Coupled with Cyanogen-Bromide- fur. J. Biochem., 1978, 92, 621-629			
at the 5' terminus: synth	nesis of oigonucleotides containing an aliphatic amino group nesis of fluorescent DNA primers for use in DNA sequence Res., 1985, 13, 2399-2412			
	V., "Antisense RNA mediates transcriptional processing in an ating a novel kind of RNase activity", Mol. Microbiol., 1993,			
	ification of polymerase chain reaction products by affinity- ", Nucl. Acids Res., 1988, 16, 11327-11338			
	egulation of Mouse DNA Methyltransferase Gene hem., 1991, 266, 10027-10030			
	others, M.H., "An Investigation of Several Deoxynucleoside ful for Synthesizing Deoxyoligonucleotides", Tetrahedron 248			
		tem for oligodeoxynucleotide probe- earch, 1991, 19, 3345-3350		
1	Volk, et al., "An antisense transcript from the Xenopus laevis bFGF gene coding an evolutionarity conserved 24 kd protein", EMBO J., 1989, 8, 2983-2988			
EXAMINER	DATE C	ONSIDERED		

List of Patent and Publications Cited by Applicant (Use several sheets if necessary) Applicant Brenda F. Baker, et al.				1		
Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office Filing Date November 4, 2003 Confirmation No. Not Yet Assigned OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) Wetlaufer, et al., "Surfactant-Mediated Protein Hydrophobic-Interaction Chromatography", J. Chromatography, 1986, 359, 55-60 Wu, et al., "Purification and Properties of Drosophila Heat Shock Activator Protein", Science, 1987, 238, 1247-1253 Wu, et al., "High Resolution Separation and Analysis of Biological Macromolecules", Methods in Enzymology, 1996, 270, 27-47 106 Yashima, et al., "High-performance affinity chromatography of oligonucleotides on nucleic acid analogue immobilized silica gel columns", J. Chromatog., 1992, 603, 111-119 107 Yasuda, et al., "Purification and characterization of a ribonuclease from human spleem", Eur. J. Biochem., 1990, 191, 523-529 108 Zarytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 109 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 111 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and	Form	PTO	-1449 Modified	ľ		
Patent and Trademark Office November 4, 2003 Confirmation No. Not Yet Assigned OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) 103 Wetlaufer, et al., "Surfactant-Mediated Protein Hydrophobic-Interaction Chromatography", J. Chromatography, 1986, 359, 55-60 104 Wu, et al., "Purification and Properties of Drosophila Heat Shock Activator Protein", Science, 1987, 238, 1247-1253 105 Wu, et al., "High Resolution Separation and Analysis of Biological Macromolecules", Methods in Enzymology, 1996, 270, 27-47 106 Yashima, et al., "High-performance affinity chromatography of oligonucleotides on nucleic acid analogue immobilized silica gel columns", J. Chromatog., 1992, 603, 111-119 107 Yasuda, et al., "Purification and characterization of a ribonuclease from human spleen", Eur. J. Biochem., 1990, 191, 523-529 108 Zarytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 109 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 110 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 111 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and		Cited by Applicant				
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.) 103 Wetlaufer, et al., "Surfactant-Mediated Protein Hydrophobic-Interaction Chromatography", J. Chromatography, 1986, 359, 55-60 104 Wu, et al., "Purification and Properties of Drosophila Heat Shock Activator Protein", Science, 1987, 238, 1247-1253 105 Wu, et al., "High Resolution Separation and Analysis of Biological Macromolecules", Methods in Enzymology, 1996, 270, 27-47 106 Yashima, et al., "High-performance affinity chromatography of oligonucleotides on nucleic acid analogue immobilized silica gel columns", J. Chromatog., 1992, 603, 111-119 107 Yasuda, et al., "Purification and characterization of a ribonuclease from human spleen", Eur. J. Biochem., 1990, 191, 523-529 108 Zarytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 109 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 110 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 111 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and						· -
103 Wetlaufer, et al., "Surfactant-Mediated Protein Hydrophobic-Interaction Chromatography", J. Chromatography, 1986, 359, 55-60 104 Wu, et al., "Purification and Properties of Drosophila Heat Shock Activator Protein", Science, 1987, 238, 1247-1253 105 Wu, et al., "High Resolution Separation and Analysis of Biological Macromolecules", Methods in Enzymology, 1996, 270, 27-47 106 Yashima, et al., "High-performance affinity chromatography of oligonucleotides on nucleic acid analogue immobilized silica gel columns", J. Chromatog., 1992, 603, 111-119 107 Yasuda, et al., "Purification and characterization of a ribonuclease from human spleen", Eur. J. Biochem., 1990, 191, 523-529 108 Zarytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 109 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 110 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 111 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and						
Wettauter, et al., "Surfactant-Mediated Protein Hydrophobic-Interaction Chromatography", J. Chromatography, 1986, 359, 55-60 104 Wu, et al., "Purification and Properties of Drosophila Heat Shock Activator Protein", Science, 1987, 238, 1247-1253 105 Wu, et al., "High Resolution Separation and Analysis of Biological Macromolecules", Methods in Enzymology, 1996, 270, 27-47 106 Yashima, et al., "High-performance affinity chromatography of oligonucleotides on nucleic acid analogue immobilized silica gel columns", J. Chromatog., 1992, 603, 111-119 107 Yasuda, et al., "Purification and characterization of a ribonuclease from human spleen", Eur. J. Biochem., 1990, 191, 523-529 2arytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 109 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 110 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 111 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and	O	THE	R DOCUMENTS (Includ	ing Author	r, Title, Date, l	Pertinent Pages, Etc.)
Wu, et al., "Purincation and Properties of Drosophila Heat Shock Activator Protein", Science, 1987, 238, 1247-1253 Wu, et al., "High Resolution Separation and Analysis of Biological Macromolecules", Methods in Enzymology, 1996, 270, 27-47 Yashima, et al., "High-performance affinity chromatography of oligonucleotides on nucleic acid analogue immobilized silica gel columns", J. Chromatog., 1992, 603, 111-119 107 Yasuda, et al., "Purification and characterization of a ribonuclease from human spleen", Eur. J. Biochem., 1990, 191, 523-529 Zarytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 109 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 111 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and		wetlauter, et al., "Surfactant-Mediated Protein Hydrophobic-Interaction				<u> </u>
Wu, et al., "High Resolution Separation and Analysis of Biological Macromolecules", Methods in Enzymology, 1996, 270, 27-47 106 Yashima, et al., "High-performance affinity chromatography of oligonucleotides on nucleic acid analogue immobilized silica gel columns", J. Chromatog., 1992, 603, 111-119 107 Yasuda, et al., "Purification and characterization of a ribonuclease from human spleen", Eur. J. Biochem., 1990, 191, 523-529 Zarytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 109 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 111 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and		wu, et al., "Purification and Properties of <i>Drosophila</i> Heat Shock Activator Protein",				ila Heat Shock Activator Protein",
107 Yasuda, et al., "Purification and characterization of a ribonuclease from human spleen", Eur. J. Biochem., 1990, 191, 523-529 108 Zarytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 109 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 110 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 111 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and		wu, et al., "High Resolution Separation and Analysis of Biological				
spleen", Eur. J. Biochem., 1990, 191, 523-529 Zarytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and	nucleic acid analogue immobilized silica gel columns", J. Chron					
 Zarytova, et al., "Affinity Chromatography of DNA Fragments and P-Modified Oligonucleotides", Analyt. Biochem., 1990, 188, 214-218 Zuckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and 					a ribonuclease from human	
2uckermann, et al., "Efficient methods for attachment of thiol specific probes to the 3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15, 5305-5321 Hyrup, B. And Nielsen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications", Bioorganic & Med. Chem., 1996, 4, 5-23 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and		108	-			•
Potential Applications", <i>Bioorganic & Med. Chem.</i> , 1996, 4, 5-23 Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and		3'-ends of synthetic oligodeoxyribonucleotides", Nucleic Acids Research, 1987, 15				
Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and		Hyrup, B. And Meisen, P., "Peptide Nucleic Acids (PNA): Synthesis, Properties and				
		111	Agrawal, S. et al., "Synthesis and Anti-HIV Activity of Oligoribonucleotides and			
Shibahara, S. et al., "Inhibition of human immunodeficiency virus (HIV-1) replication by synthetic oligo-RNA derivatives," <i>Nucl. Acids Res.</i> , 1989 , <i>17(1)</i> , 239-252		replication by synthetic oligo-RNA derivatives," <i>Nucl. Acids Res.</i> , 1989, 17(1), 239-			` ` '	
EXAMINER DATE CONSIDERED	EXAMINER				DATE CONS	SIDERED

Form PTO-14	49 Modified	Docket No. ISIS-5203	Application No. 10/700,920			
List of Patent an Cited by A (Use several shee	pplicant	Applicant Brenda F. Baker, et al.				
U.S. Department Patent and Trad		Filing Date November 4, 2003	Group Not Yet Assigned			
		Confirmation No. Not Yet Assigned				
OTHER D	OCUMENTS (Includ	ing Author, Title, Date, I	Pertinent Pages, Etc.)			
1 1 1	grawal, S., "Antisense (96 , <i>14</i> , 376-388	Oligonucleotides: Towards	s Clinical Trials," TIBTECH,			
114 Br	ranch, A., "A Good Ant	isense is Hard to Find," The	TBS, 1998 , 23, 45-50			
se	Metelev, et al., "Study of antisense oligonucleotide phosphorothioates containing segments of oligodeoxynucleotides and 2'-methyloligoribonucleotides", <i>Bioorg. & Med. Chem. Lett.</i> , 1994 , <i>4</i> , 2929-2934					
	igodeoxynucleotide tar	activity of a phosphorothigeted against c-raf kinase"	oate antisense , Nature Medicine, 1996, 2, 668-			
	htsuki, et al., "Isolation ymus", J. Biol. Chem.,		e-stranded ribonuclease from calf			
118 Ai						
Ce	Arya, S. K. et al., "Inhibition of Synthesis of Murine Leukemia Virus in Cultured Cells by Polyribonucleotides and Their 2'-O-Alkyl Derivatives," <i>Molecular Pharmacology</i> , 1976 , <i>12</i> , 234-241					
	Hobbs, J. et al., "Polynucleotides Containing 2'-Amino 2'-deoxyribose and 2'-Azido-2'-deoxyribose [†] ," <i>Biochem.</i> , 1973 , <i>12</i> , 5138-5145					
121 H	Hobbs, J. et al., "Poly 2'-Deoxy-2'-Aminouridylic Acid, 1972, 46(4), 1509-1515					
1	obbs, J. et al., "Polynuc ekstein et al., Ed., 1972		oro-2'-deoxyribose," Biochem.,			
EXAMINER		DATE CONS	SIDERED			

Form PTO	-1449 Modified	Docket No ISIS-5203		Application No. 10/700,920			
Cited 1	List of Patent and Publications Cited by Applicant (Use several sheets if necessary)						
	U.S. Department of Commerce Patent and Trademark Office			Group Not Yet Assigned			
		Confirmat Not Yet A					
OTHE	R DOCUMENTS (Includ	ling Author	, Title, Date,	Pertinent Pages, Etc.)			
123	Wincott et al., "Synthesis, deprotection, analysis and purification of RNA an ribozymes," <i>Nucl. Acids Res.</i> , 1995, 23(14), 2677-2684						
124	DeClercq, E. et al., "Influence of various 2- and 2'-substituted polyadenyl acids of murine leukemia virus reverse transcriptase," <i>Cancer Letters</i> , 1979 , 7, 27-37						
125		Pieken, W. et al., "Kinetic Characterization of Ribonuclease-Resistant 2'-Modified Hammerhead Ribozymes," <i>Science</i> , 1991 , <i>253</i> , 314-317					
126	Pilet, J. et al., "Structural	-	_	single and double helical Res Commun, 1973 , <i>52(2)</i> , 517-523			
127	Rottman, F. et al., "Polyn by Polynucleotide Phosp			0-Methyladenosine. I. Synthesis, 7, 2634-2641			
128	Rottman, F. et al., "Polyn Heteropolymers," Bioche			hylnucleotides. II. Synthesis of			
129	polynucleotide structure,	," Biochem I	Biophys Res Co	l and the role of the 2'-hydroxyl in ommun, 1969 , <i>37(6)</i> , 895-901			
130	interference in Drosophi	la," Curr. B	iol., 2001, 11,				
131	Biophysica Acta, 2002, 1	1575, 15-25		nterference," Biochimica et			
132							
EXAMINER			DATE CON	SIDERED			

Form PTO-1449 Modified	Docket No. ISIS-5203	Application No. 10/700,920			
List of Patent and Publications Cited by Applicant (Use several sheets if necessary)	Applicant Brenda F. Baker, et a	1.			
U.S. Department of Commerce Patent and Trademark Office	Filing Date November 4, 2003	Group Not Yet Assigned			
	Confirmation No. Not Yet Assigned				
OTHER DOCUMENTS (Including Author, Title, Da	te, Pertinent Pages, Etc.)			
	Chiu, YL., et al., "RNAi in human cells: basic structural and functional features small interfering RNA," <i>Molecular Cell</i> , September 2002 , <i>10</i> , 549-561				
134 Cogoni, C., et al.,	Cogoni, C., et al., "Post-transcriptional gene silencing across kingdoms," Curr. Opinion in Genes Dev., 2000, 10, 638-643				
135 Elbashir, S.M., et	Elbashir, S.M., et al., "Functional anatomy of siRNAs for mediating efficient RNAi in <i>Drosophila melanogaster</i> embryo lysate," <i>EMBO J.</i> , 2001 , <i>29</i> (23), 6877-6888				
136 Elbashir, S.M., et		diated by 21- and -22-nucleotide			
137 Elbashir, S.M., et		de RNAs mediate RNA interference 2001, 411, 494-498			
138 Fire, A., et al., "Po		rference by double-stranded RNA in			
139 Guo, S., et al., "po	r-1, a gene required for estab a putative Ser/Thr kinase tha	olishing polarity in C. elegans t is asymmetrically distributed," Cell,			
		ure, April 20, 2000 , 404, 804-808			
flowers: comparis	Jorgensen, R.A., et al., "Chalcone sythase cosuppression phenotypes in petunia flowers: comparison of sense vs. antisense contructs and single-copy vs. complex T-DNA sequences," <i>Plant Mol. Biol.</i> , 1996 , <i>31</i> , 957-973				
142 Lipardi, C., et al.,	"RNAi as random degradativ As that are degraded to gener	re PCR: siRNA primers convert rate new siRNAs," <i>Cell</i> , November 2,			
EXAMINER	DATE CO	ONSIDERED			

Form PTO	-1449 Modified	Docket No. ISIS-5203	Application No. 10/700,920		
Cited b	List of Patent and Publications Cited by Applicant (Use several sheets if necessary)				
	nent of Commerce Frademark Office	Filing Date November 4, 2003	Group Not Yet Assigned		
		Confirmation No. Not Yet Assigned			
OTHE	R DOCUMENTS (Includ	ling Author, Title, Date,	Pertinent Pages, Etc.)		
143	Martinez, J., et al., "Sing RNAi," Cell, September		NAs guide target RNA cleavage in		
144					
145					
146	Napoli, C., et al., "introd	uction of a chimeric chalc	cone synthase gene into petunia s genes in trans," Plant Cell, April		
147			rected RNA polymerase acts as a 418		
148	Parrish, S., et al., "Functi	ional anatomy of a dsRNA	A trigger: differential requirement Molecular Cell, November 2000, 6,		
149			tion as guides, not primers, in the ar Cell, September 2002, 10,		
150	Sijen, T., et al., "On the role of RNA amplification in dsRNA-triggered gene silencing," <i>Cell</i> , November 16, 2001 , <i>107</i> , 465-476				
151	October 16, 1998, 282, 4	30-431	the genome sequence," Science,		
152	1 -		pendent gene silencing triggered in huary 25, 2002 , <i>295</i> , 694-697		
EXAMINER		DATE CON	SIDERED		

 					The state of the s
Form PTO-1449 Modified List of Patent and Publications Cited by Applicant (Use several sheets if necessary)		Docket No ISIS-5203		Application No. 10/700,920	
		Applicant Brenda F. Baker, et al.			
U.S. Department of Commerce Patent and Trademark Office		Filing Dat November		Group Not Yet Assigned	
			Confirmat Not Yet A		
O	THEF	R DOCUMENTS (Includ	ling Author	r, Title, Date, l	Pertinent Pages, Etc.)
	153				ssed dsRNAs can produce specific elegans," Gene, 2001, 263,
	154	Timmons, L., et al., "Spo 1998, 395, page 854	ecific interfe	erence by inges	ted dsRNA," Nature, October 29,
	155	Tuschl, T., et al., "Targe <i>Genes & Dev.</i> , 1999 , 13,			double-stranded RNA in vitro,"
EXAMINER				DATE CONS	SIDERED

Fo	rm PT	O-1449 Modifi	ed	Docket No. ISIS-5203	Applica 10/700	ation No. ,920	
	List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office			Applicant Brenda F. Baker, et al.			
				Filing Date November 4, 2003	Group Not Ye	t Assigned	
				Confirmation No. Not Yet Assigned			
		U	. S. PATEN	T DOCUMENTS	<u> </u>		
Examiner Initial		Document No.	Date	Name		Class	Subclass
	156	3,687,808	8/29/72	Merigan, et. al.		195	28
	157	5,013,830	5/7/91	Ohtsuka, et al.		536	27
	158	5,023,243	6/11/91	Tullis		514	44
	159	5,130,302	7/14/92	Spielvogel, et al.		514	45
	160	5,142,047	8/25/92	Tullis		514	44
-	161	5,149,797	9/22/92	Pederson, et al.		536	27
	162	5,177,198	1/5/93	Spielvogel, et al.		514	45
	163	5,223,618	6/29/93	Cook, et al.		544	276
	164	5,235,033	8/10/93	Summerton, et al.		528	391
	165	5,256,775	10/26/93	Froehler		536	25.6
	166	5,264,562	11/23/93	Matteucci	· · · · ·	536	23.1
	167	5,264,564	11/23/93	Matteucci		536	23.1
	168	5,359,044	10/25/94	Cook, et al.		536	23.1
	169	5,366,878	11/22/94	Pederson, et al.		435	91.3
	170	5,378,825	1/3/95	Cook, et al.		536	25.34
	171	5,457,191	10/10/95	Cook, et al.		536	27.13
	172	5,459,255	10/17/95	Cook, et al.		536	27.13
EXAMINE	R			DATE CONSIDER	ED		

Fo	rm PT	O-1449 Modifie	d	Docket No. ISIS-5203	Applica 10/700	ation No.	
	List of Patent and Publications Cited by Applicant (Use several sheets if necessary)			Applicant Brenda F. Baker, et al.			
U.S. Department of Commerce Patent and Trademark Office			Filing Date November 4, 2003				
			Confirmation No. Not Yet Assigned				
		U.	S. PATENT	T DOCUMENTS			
Examiner Initial		Document No.	Date	Name		Class	Subclass
	173	5,466,786	11/14/95	Buhr, et al.		536	26.26
	174	5,476,925	12/19/95	Letsinger, et al.		536	23.1
	175	5,484,908	1/16/96	Froehler, et al.		536	24.31
	176	5,506,351	4/9/96	McGee		536	55.3
	177	5,514,786	5/7/96	Cook, et al.			
	178	5,386,023	1/31/95	Sanghvi, et al.		536	25.3
	179	5,489,677	2/6/96	Sanghvi, et al.		536	22.1
	180	5,539,083	7/23/96	Cook, et al.		530	333
	181	5,506,337	4/9/96	Summerton, et al.		528	391
	182	5,403,711	4/4/95	Walder, et al.		435	6
	183	5,508,270	4/16/96	Baxter, et al.		514	47
	184	4,373,071	02/08/83	Itakura		525	375
	185	4,401,796	08/30/83	Itakura		525	340
	186	4,469,863	9/4/84	Ts'o., et al.		536	27
	187	4,507,433	3/26/85	Miller, et al.		525	54.11
	188	4,812,512	3/14/89	Buendia, et al.		525	54.11
	189	4,908,405	3/13/90	Bayer, et al.		525	61
	190	5,391,667	2/21/95	Dellinger		526	264
EXAMINE	3			DATE CONSIDER	RED		

Fo	rm PT	O-1449 Modif	iied	Docket No. ISIS-5203	Applica 10/700,	ation No. ,920	
	List of Patent and Publications Cited by Applicant (Use several sheets if necessary)			Applicant Brenda F. Baker, et al.			
U.S. Department of Commerce Patent and Trademark Office		Filing Date November 4, 2003	Group Not Ye	t Assigned			
			Confirmation No. Not Yet Assigned				
		l	U. S. PATEN	T DOCUMENTS	•		
Examiner Initial		Document No.	Date	Name		Class	Subclass
	191	5,519,134	5/21/96	Acevedo, et al.		544	243
	192	5,614,617	3/25/97	Cook, et al.		536	23.1
	193	5,962,425	10/05/99	Walder, et al.		514	44
	194	5,804,683	09/08/98	Usman et al.		536	25.31
	195	5,891,683	04/06/99	Usman et al.		435	91.31
	196	5,898,031	04/27/99	Crooke, et al.		435	172.3
	197	6,107,094	08/22/00	Crooke		435	455
	198	4,845,205	07/04/89	Huynh Dinh, et al.		536	28
	199	5,525,711	06/11/96	Hawkins, et al.		536	22.1
	200	5,587,469	12/24/96	Cook, et al.		536	23.1
	201	5,587,470	12/24/96	Cook, et al.		536	23.1
	202	5,594,121	01/14/97	Froehler, et al.		536	23.5
	203	5,596,091	01/21/97	Switzer		536	24.5
	204	5,681,941	10/28/97	Cook, et al.		536	23.1
	205	5,691,307	11/25/97	Moschel, et al.		514	12
	206	5,789,562	08/04/98	Seela, et al.		536	22.1
	207	5,808,027	09/15/98	Cook, et al.		536	23.1
EXAMINE	R			DATE CONSIDER	RED		

Fo	rm PT	O-1449 Modifie	d	Docket No. ISIS-5203	Applica 10/700	ation No. ,920	
	List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office			Applicant Brenda F. Baker, et al.			
				Filing Date November 4, 2003	Group Not Ye	t Assigned	
				Confirmation No. Not Yet Assigned			
		U.	S. PATENT	T DOCUMENTS			
Examiner Initial		Document No.	Date	Name		Class	Subclass
	208	5,811,534	09/22/98	Cook, et al.		536	23.1
	209	5,824,796	10/20/98	Petrie, et al.		536	26.7
	210	5,844,106	12/01/98	Seela, et al.		536	22.1
	211	5,898,031	04/27/99	Crooke,		435	172.3
	212	5,948,903	09/07/99	Cook, et al.		536	25.34
	213	6,001,983	12/14/99	Benner		536	23.1
	214	6,066,720	05/23/00	Seela, et al.		536	22.1
	215	6,093,807	07/25/00	Balow, et al.		536	23.1
	216	6,107,094	08/22/00	Crooke		435	455
	217	6,127,121	10/03/00	Meyer, Jr., et al.		435	6
	218	6,143,877	11/07/00	Meyer, et al.		536	22.1
	219	6,174,998 B1	01/16/01	Mühlegger, et al.		536	4.1
	220	6,211,158 B1	04/03/01	Seela, et al.		514	44
	221	6,268,132 B1	07/31/01	Conrad		435	6
EXAMINER	\\ `			DATE CONSIDER	RED		

Form PTO-1449 Modified

List of Patent and Publications
Cited by Applicant
(Use several sheets if necessary)

U.S. Department of Commerce Patent and Trademark Office Docket No. ISIS-5203

Application No. 10/700,920

Applicant

Brenda F. Baker, et al.

Filing Date

Group

November 4, 2003

Not Yet Assigned

Confirmation No. Not Yet Assigned

FOREIGN PATENT DOCUMENTS

Examiner				Country	Tran	slation
Initial		Document No.	Date		YES	NO
	222	WO 92/20822	11/26/92	PCT		
	223	WO 92/20823	11/26/92	PCT		
	224	WO 92/22651	12/23/92	PCT		
	225	WO 94/02499	02/03/94	PCT		
	226	WO 94/02501	02/03/94	PCT		
	227	WO 94/17093	08/04/94	PCT		
	228	339,842	11/02/89	EPO		
	229	2-264792	10/29/90	Japan		
	230	WO 92/07065	04/30/92	PCT		
	231	WO 99/32619	7/1/99	РСТ		x
	232	WO 00/44895	08/03/00	PCT	X abstract	
	233	WO 00/44914	08/03/00	PCT		
	234	WO 00/49035	08/24/00	PCT		
	235	WO 00/63364	10/26/00	PCT		
	236	WO 01/29058	04/26/01	PCT		
	237	WO 01/36641 A2	05/25/01	PCT		
EXAMINE	₹			DATE CONSIDER	ED	

Docket No. Application No. Form PTO-1449 Modified ISIS-5203 10/700,920 List of Patent and Publications **Applicant** Cited by Applicant Brenda F. Baker, et al. (Use several sheets if necessary) U.S. Department of Commerce Filing Date Group Patent and Trademark Office November 4, 2003 Not Yet Assigned Confirmation No. Not Yet Assigned FOREIGN PATENT DOCUMENTS Examiner Translation **Initial** Document No. **Country** Date YES NO 05/25/01 238 WO 01/36646 A2 **PCT** 239 WO 01/48183 A2 07/05/01 **PCT** 240 WO 01/75164 A3 10/11/01 **PCT EXAMINER DATE CONSIDERED**